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Discrimination of Genera of Pselaphid Beetles of the United States

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Bulletin of the Chicago Academy of Sciences

Discrimination of Genera of Pselaphid Beetles of the United States

O r l a n d o P a r k
Northwestern University

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Up to the last four years the classification of the Pselaphidae in very large part was that outlined by Achille Raffray (1890, 1903, 1904, 1908, 1911). Classification of the fauna of the United States by LeConte (1850), Brendel and Wickham (1890), Casey (1893, 1897), Leng (1920), Bradley (1930) and Bowman (1934) progressively reflected this Raffrayan organization.

Over the last twenty-five years many new species and genera have been described, especially from the tropical parts of America and Africa. The aedeagus has become taxonomically important.

The reorganization of Pselaphidae by Jeannel (1949a, b, c; 1951a, b) and Park (1951; 1952a, b; 1953a) has rendered the Raffrayan system obsolescent.

The present report is an attempt to place the pselaphids of the United States in a modern frame of reference. A second purpose is to provide keys for the discrimination of local genera. These keys reflect many changes in classification but are for purposes of identification

only. They refer to the known fauna of the United States. Unless specifically stated otherwise, the key characters refer to those structures that can be seen on point-mounted specimens with a dissecting binocular at seventy diameters magnification with good illumination. Such key characters are as practical as possible and often do not express fundamental features, the examination of which may require considerable previous experience and oil immersion at 1000 diameters.

References are omitted in the keys, but are included in a complete list of taxonomic categories following the keys.

Questionable generic records in the local fauna and other obscurities do not appear in this listing of categories but are handled separately.

Since the relationship of structures often can be appreciated by diagram better than by words, certain key characters that may give trouble are illustrated by semidiagrammatic line drawings. These drawings refer to a condition, rather than to a particular species population in many instances.

KEY TO TRIBES

- | | | |
|-------|---|-------------------------|
| 1 | Antennae of not more than three segments; exclusively
myrmecophilus | 2 |
| | Antennae of more than three segments | 3 |
| 2 (1) | Eyes present; body pubescence of simple, monaxon setae
(Pl. II, 10) | Fustigerini. |
| | Eyes absent; body pubescence composed largely of bifurcated setae (Pl. II, 12) | Adraniini. |
| 3 (1) | Antennae of nine segments; so far, known only from Arizona | Pyxidicerini. |
| | Antennae of more than nine segments | 4 |
| 4 (3) | Tarsi distinctly three-segmented | 5 |
| | Tarsi apparently two-segmented; minute and very slender, less than one millimeter long; antennae apparently ten-segmented; uncommon, in soil (Pl. II) | Mayetini ¹ . |

¹In the American populations seen by the author, the tarsi are in reality three-segmented, the first two segments are very minute and connate, but this condition can be fully appreciated only with oil immersion at 1000 diameters; the antennae have the tenth and eleventh segments connate, forming a distal, oval, two-piece mass. It is possible that European populations may not all be congeneric with such American species, e.g. Fauvel (Cat. System. Staphylinides Faune Gallo-Rhenane, 1st Supplement, p. 60) states that *Mayetia* (*sensu* Mulsant and Rey, 1876) have tarsi composed of three subequal tarsal segments. Mayetini were unknown from the Western Hemisphere until the late 1930's. They were transferred from the Leptotyphlinae of Staphylinidae to Pselaphidae, as a tribe, by Park (1947, p. 124), and keyed into the American pselaphid fauna by Park (1951, p. 56, 58). American mayetians must be subjected to much comparative study before their taxonomic position is clear.

- 5 (4) First two tarsal segments very short, third segment relatively very long (Pl. IV, 2) Faronini.
 First tarsal segment very short, last two segments relatively very long (Pl. IV, 4-9) 6
- 6 (5) Mesotrochanters relatively short, with the femur placed very obliquely and covering 50 per cent or more of the dorsal face of trochanter, so that the femur is relatively near its associated coxa (Pl. III, 6) 7
 Mesotrochanters relatively long, often more or less clubbed, with the femur more or less distally placed and covering 30 per cent or less of the dorsal face of trochanter, so that the femur is relatively distant to its associated coxa (Pl. III, 7) 13
- 7 (6) Abdomen with narrow to broad margins, but these margins distinct on each side of the first three visible segments 8
 Abdomen with lateral margins absent, the segments in the form of undivided rings; one or more of the first three visible segments bearing one or two entire or incomplete lateral carinae 8
 Batrisini.
- 8 (7) Metathoracic coxae contiguous, or very narrowly separated from each other (Pl. III, 3) 9
 Metathoracic coxae distant from each other (Pl. III, 4-5) 11
- 9 (8) Occipito-cervical region of head wholly covered on all sides and obscured by a conspicuous ruff of long setae (Pl. H, 9) ; third segment of maxillary palpi very elongate 9
 (Pl. V, 1) Speleobamini.
 Occipito-cervical ruff absent; third segment of maxillary palpi almost always very short 10
- 10 (9) Body wholly glabrous, polished, without setae 10
Eupsenius of Brachyglutini.
- Body densely to sparsely pubescent, but some body setae present 18
- 11 (8) Maxillary palpi with third segment² very long, almost as long, or as long as fourth segment (Pl. V, 6) Tychini.
 Maxillary palpi with third segment short, always distinctly shorter than fourth and often minute 12

²Maxillary palpi have four segments: a very short first, and three distal segments. First not easily seen on point-mounts, other segments usually distinct. Fourth (last) segment bears an apical palpal cone. Jeannel (1950, p. 7) regards the palpal cone as a vestigial fifth palpal segment; Park (1935, p. 133; 1942, p. 18, 22) regards the palpal cone as a sensory organ.

- 12 (11) First visible sternite very short, not as long as metacoxae and usually not visible medianly but may be visible laterally; usually only five sternites visible Brachyglutini³
 First visible sternite relatively long, visible medianly and as long or longer than metacoxae 19
- 13 (6) Tarsi with a single large claw, no accessory claw or unguiform seta; first visible tergite and second sternite long, about as long as rest of abdomen (Pl. IV, 7) Pselaphini
 Tarsi with a pair of large, equal to subequal claws 14
- 14 (13) Body pubescence squamous for the most part, viz., setae flattened and scale-like; clypeus laterally dilated (Pl. II, 11) Ctenistini.
 Body pubescence simple, composed of monaxon, cylindrical to aciculate setae; clypeus not dilated laterally (Pl. II, 10) 15
- 15 (14) Maxillary palpi penicillate, viz., external face of one or more segments bearing a lateral lobe or a bundle of projecting setae (Pl. V, 3) Tmesiphorini
 Maxillary palpi diverse but never penicillate 16
- 16 (15) Antennae always with a distinct club 17
 Antennae lacking any semblance of a club Ceophyllini.
- 17 (16) Maxillary palpi with the mesial (internal) face of the fourth (distal) segment longitudinally sulcate (Pl. V, 2) Hamotini.
 Maxillary palpi of diverse structure but the distal segment never longitudinally sulcate on mesial face Tyrini.
- 18 (10) Tarsi each with a pair of long, slender, unequal claws; body form similar to Tychini; mesial surfaces of metathoracic coxae triangular for articulation to trochanters; known from one genus in California Valdiini.
 Tarsi usually with a single claw, or with a claw and a short accessory claw or unguiform seta (Pl. I, 12; IV, 4) ; mesial surface of metacoxae conically produced for articulation with trochanters (Pl. III, 3) ; a very large tribe of many genera Euplectini.

³Brachyglutini *sensu* Raffray (1908) and Park, 1942 *et seq.* is the equivalent of Brachyini of Jeannel 1949 *et seq.*

- 19 (12) First antennal segment elongate and conspicuous, always as long as second and third segments, and usually much longer; maxillary palpi large and conspicuous, with a very large fourth or distal segment (Pl. IV, 12-14) *Bythinini*.

First antennal segment short and inconspicuous, not as long as second and third segments united; maxillary palpi small and inconspicuous *Trichonyx* of Euplectini.

KEYS TO SUBTRIBES, GENERA, AND SUBGENERA

Tribe Faronini

- 1 Tarsi with a single claw *Caccoplectus*.
Tarsi with two equal claws (Pl. IV, 2) 2
- 2 (1) Frontal fovea very elongate so that it extends anteriorly between the antennal tubercles *Megarafonus*.
Frontal fovea very short, and not extended between the antennal tubercles *Sonoma*.

Tribe Pyxidicerini

Monogeneric, see checklist⁴.

Tribe Mayetini

Monogeneric, see checklist.

Tribe Speleobamini

Eyes, vertexal foveae, pronotal foveae, elytral foveae wholly absent; distal segment of maxillary palpi densely tuberculate (Pl. V, 1) *Speleobama*.

Eyes present but vestigial (six facets in males, two facets in females); pronotum with a row of five shallow antebasal foveae; each elytron with two shallow foveae; distal segment of maxillary palpi subglabrous and not tuberculate (Pl. V, 15) *Prespelea*.

Tribe Euplectini

- 1 Head strongly narrowed anteriorly into a long frontal rostrum with antennae approximately inserted at rostral apex Subtribe Rhinoscepsina.
Head with frontal rostrum absent 2

⁴Monogeneric in so far as the United States fauna is concerned.

Subtribe Trichonychina

Monogeneric, see checklist.

Subtribe Panaphantina

Monogeneric, see checklist.

Subtribe Bibloporina

Vertexal foveae nude; pronotum with three free, longitudinal sulcoid impressions

Bibloporus.

Vertexal foveae pubescent; pronotum with three foveoid impressions more or less united by a transverse antebasal sulcus

Entyphlus.

Subtribe Euplectina

1 Prosternum with two distant and diverging longitudinal carinae

Oropodes.

Prosternum not as described

2

2 (1) Head with a supraocular and an infraocular sulcus on each side

3

Head not provided with such sulci

4

3 (2) Vertexal foveae connected by a U-shaped interfoveal sulcus

Acolonia.

Vertexal foveae connected by a V-shaped interfoveal sulcus and, in addition, the foveae are connected by a transverse interfoveal sulcus, these two sulci forming an impressed triangle

Trigonoplectus.

4 (2) Flank of each elytron provided with a subhumeral fovea. (fovea may be nude or pubescent, may be free or associated with a longitudinal sulcus or carina, but is not to be confused with the antebasal foveae on the base of elytral disc)

5

Elytral flank with subhumeral fovea absent

Trimiopectus.

5 (4) Pronotal disc bearing either a median longitudinal sulcus, or a median fovea

6

Pronotal disc simple and evenly convex

7

6 (5) Ventral surface of head bearing a few suberect, capitate setae in one or two rows just posterior to the mouth-parts (Pl. II, 13)

Thesiastes.

Ventral surface of head lacking capitate setae, the setae present are acuminate, subappressed, sparse and usually pointed anteriorly

Euplectus.

- 7 (5) Each elytron with a long discal stria, or a long discal impression, at least half of the elytral length *Ramecia*⁵.

Each elytron without a discal stria or long discal impression (at most a short oval impression from base to not more than one-fifth of elytral length) ; median antebasal pronotal fovea bisected by a short median, longitudinal carina from basal margin in all except one species

Biblopectus

Subtribe Trimiina

- 1 Flank of each elytron bearing a subhumeral fovea (Pl. III, 10) 2
 Flank of each elytron with subhumeral fovea absent 5
- 2 (1) Tenth antennal segment bilaterally symmetrical 3
 Tenth antennal segment very asymmetrically triangular 4
- 3 (2) Pronotal base bisected by a strong longitudinal carina from basal bead to straight antebasal sulcus *Lemelba*.
 Pronotum without such a carina; antebasal sulcus strongly biarcuate *Actium*.
- 4 (2) Transverse antebasal pronotal sulcus strongly biarcuate, with median point briefly extended posteriorly as a cusp; known only from Arizona *Simplona*.
 Pronotum with a Y-shaped antebasal sulcus, the stem of the Y reaching basal bead as a median longitudinal sulcus; known from Alaska, British Columbia and Oregon
Cupila, subgenus *Cupila* (*s.str.*)
- 5 (1) Distal segment of maxillary palpi distinctly and obviously larger than preceding segment 6
 Distal segment of maxillary palpi not, or only slightly larger than the preceding segment *Basolum*.
- 6 (5) Tenth antennal segment bilaterally symmetrical (P1. I, 1) 7
 Tenth antennal segment very asymmetrically triangular *Dalmosella*.
- 7 (6) First two tergites visible subequally long (*Melba*) 8
 First tergite visible obviously longer than the second tergite (P1. I, 1) *Trimiomelba*.

⁵*Ramecia* may be a composite genus; it needs more study, e.g., the accessory bristle on the tarsi is very large and well-developed for Euplectina, and the genus may belong in the Trogastrina. For a discussion of this situation cf. Casey (1893) and Park (1942) .

- 8 (7) Each elytron with an oblique carina that arises near the middle of elytral margin and extends obliquely dorsoposteriorly to apical elytral margin (Pl. III, 11)

Subgenus *Melba* (*s.str.*)

- Each elytron with a longitudinal carina that is subparallel to lateral elytral margin, from near the middle of elytral length to apical elytral margin (Pl. III, 12)

Subgenus *Perimelba*.

Tribe Brachyglutini

- 1 Ventral surface of head with a large, median ovate fossa, the latter with carinoid edges; antennae always ten-segmented in both sexes Subtribe Decarthronina.

- Ventral surface of head not bearing such a fossa 2

- 2 (1) Ventral surface of head bearing a median, longitudinal carina or carinoid ridge; body with from dense to very sparse pubescence, but at least some setae are present; antennae usually eleven-segmented, rarely ten-segmented

Subtribe Brachyglutina *s.str.*

- Ventral surface of head not medianly carinate; body glabrous and highly polished; antennae eleven-segmented in both sexes Subtribe Eupseniina.

Subtribe Decarthronina

Monogeneric, see checklist.

Subtribe Eupseniina

Monogeneric, see checklist.

Subtribe Brachyglutina, *s.str.*

- 1 Each elytron with a distinct discal stria 2
Elytra with discal stria absent, at times with a vague and very short depression near elytral base 6

- 2 (1) Pronotum with a deep transverse antebasal sulcus that connects a lateral fovea on each side *Rybaxis*.

- Pronotum without a transverse antebasal sulcus, and if ante-basal foveae are present they are free 3

- 3 (2) Vertex with a pair of distinct vertexal foveae between the eyes 4

- Vertex with vertexal foveae absent *Nisaxis*.

- 4 (3) Pronotum with three large, subequal, pubescent antebasal foveae *Brachygluta*.

- Pronotum with the two lateral foveae relatively large and pubescent, the median fovea small and glabrous 5

- 5 (4) First visible tergite bearing a pair of basal abdominal carinae (these may be short or long; parallel, convergent or divergent; very approximate or very distant, but are always present) *Reichenbachia*⁶

First visible tergite with no basal abdominal carinae; known only from the Dry Tortugas of Florida *Briaraxis*.

- 6 (1) Pronotum may, or may not have an antebasal, transverse row or band of punctures or granulated areas, but in addition bears a median antebasal fovea or pit 7

Pronotum may, or may not have an antebasal, transverse row or band of punctures or granulated areas, but does not have a median fovea or pit 8

- 7 (6) Each elytron with a row of three to four small antebasal foveoid pits; antennae eleven-segmented in both sexes; vertex unmodified in the male *Eutrichites*.

Each elytron with no vestige of antebasal foveae or foveoid pits; antennae ten-segmented in the male, eleven-segmented in the female; vertex of male excavated or otherwise abnormal *Anchylarthron*.

- 8 (6) Mesosternum broad, truncate, usually flat between the mesocoxae; first two antennal segments subequal

Scalenarthrus.

Mesosternum acute between mesocoxae and bearing a high median longitudinal Carina; first antennal segment distinctly wider and longer than second in males, slightly longer but distinctly wider in females *Pselaptus*.

Tribe Valdiini

Monogeneric, see checklist.

Tribe Tychini

Vertexal foveae entirely visible from a dorsal view, e.g. relatively remote from the eyes; second segment of metathoracic tarsi as long as or longer than the third (distal) segment *Tychus*.

Vertexal foveae not entirely visible from a dorsal view, e.g. placed on the sloping sides of the vertex and relatively near the eyes; second segment of metathoracic tarsi always shorter than third segment

Cylindrantus.

⁶Largest genus of the family, with upwards of 350 species; species populations large; genus still poorly known. For discussion of invariable generic characters, variation in other characters, keys to neotropical species see Park (1945) ; for discussion of amount of separation of mesocoxae see Park (1944, p. 241) . Jeannel (1949a, p. 86) separates *Reichenbachia* (s. str.) with bifoveate elytra, from *Trissemus* Jeannel and *Corynecerus* Jeannel with trifoveate elytra. See Park (1951, p. 62) and Park (1945) on this separation.

Tribe Bythinini

- 1 Eyes wholly absent; metathoracic wings absent; known only from caves *Machaerites (Speleochus)*.
Eyes well developed, or eyes vestigial (four or five facets), but always present; wings well developed or vestigial but present; cavernicolous or not 2
- 2 (1) Second and third palpal segments studded with small tubercles (Pl. IV, 12) 3
Second and third palpal segments subglabrous and not tuberculated (Pl. IV, 13) *Machaerodes*.
- 3 (2) Fourth palpal segment relatively broad, being about twice as long as wide (Pl. IV, 12) *Pselaptrichus*. 4
Fourth palpal segment relatively narrow, always more than twice as long as wide *Bythinopsis*.
- 4 (3) Each elytral flank with a subhumeral fovea and a longitudinal sulcus (Pl. III, 10) subgenus *Pselaptrichus (s.str.)*
Elytral flanks with subhumeral fovea and sulcus absent (Pl. III, 9) subgenus *Vestitrichus*.

Tribe Batrisini

Eyes present, although they may be very small, and in some of the cavernicolous species the eyes are reduced to nine facets; last two tarsal segments subequal in length; tarsal claws very unequal but both distinct Subtribe Batrisina *s.str.*

Eyes wholly absent, their places taken by a short spine; second tarsal segment much longer than third; accessory tarsal claw present as a just discernible setoid process, or may be overlooked easily; cavernicolous or not Subtribe Amauropsina.

Subtribe Amauropsina

Pronotum with a distinct median antebasal fovea

Arianops, subgenus *Arianops. (s.str.)*

Pronotum simply oboval, lacking all foveae, tubercles or sulci

subgenus *Arispeleops*.

Subtribe Batrisina

- 1 Elytral flanks without trace of a subhumeral fovea (Pl. III, 9) *Arthmius*.
Each elytral flank with a well developed subhumeral fovea (Pl. III, 10) *Batrisodes*. 2

- 2 (1) Metathoracic tibiae lacking apical spurs; aedeagus with one,
or with two styles subgenus *Batriasymmodes*.
Metathoracic tibiae each with an apical spur; aedeagus without
styles⁷ 3
- 3 (2) Mesothoracic tarsi of males abnormal (Pl. IV, 6)
subgenus *Babnormodes*.
Mesotarsi of males normal (Pl. IV, 5) 4
- 4 (3) Vertexal foveae densely pubescent subgenus *Pubimodes*.
Vertexal foveae nude 5
- 5 (4) Male sex with face transversely excavated between the
antennal cavities; female sex with face simply declivous subgenus
Excavodes.
Both sexes with face unexcavated between antennal cavities 6
- 6 (5) Each elytron bifoveate subgenus *Elytrodes*.
Each elytron trifoveate 7
- 7 (6) Males with mesothoracic femora bearing a conspicuous arcuate,
blunted spine on ventral face subgenus *Spifemodes*. Males with
mesofemora lacking spines 8
- 8 (7) Head polished; tenth antennal segment of males simple or
toothed on ventral face but never foveate; species popu-
lations unknown east of the Rocky Mountains
subgenus *Empinodes*.
Head conspicuously granulate-punctate; tenth antennal segment of
males foveate on ventral face; species populations unknown
west of the Great Plains subgenus *Declivodes*.

Tribe Pselaphini

Monogeneric, see checklist.

Tribe Tmesiphorini

Monogeneric, see checklist.

Tribe Tyrini

- 1 Eyes vestigial, of two coarse facets in both sexes *Mipselytyrus*.
Eyes prominent 2
- 2 (1) Maxillary palpi with the second segment elongate and gradually
swollen distally; third segment elongate and gradually swollen
distally; fourth segment elongatefusiform (Pl. V, 8) *Tyrus*.
Maxillary palpi with second segment strongly arcuate and
subsemicircular; third segment very transverse, about

⁷The aedeagus of subgenus *Empimodes* is uninvestigated, and consequently this part of the couplet in the key may not hold for this subgenus.

twice as wide as long, transversely conical, with the external face short and convex, and internal face produced as a long spinoid process; fourth segment nearly twice as long as third and about half as wide as third

(Pl. V, 5)

Cedius. 3

- 3 (2) Males with an aedeagus that has the apical diaphragm bearing a minute distal pore; apex of median lobe strongly arcuate to morphological right; penial plate (seventh sternite) exerted to morphological right subgenus *Cedius* (*s. str.*)

Males with an aedeagus that has the apical diaphragm bearing a large aperture that covers about one-third of membrane area, apex of median lobe strongly arcuate to morphological left; penial plate exerted to morphological left subgenus *Sinistrocedius*.

Tribe Hamotini

Antennae with a three-segmented club *Hamotus* (*Hamotoides*)

- Antennae with the club formed by the very large distal (eleventh) segment, this segment about seven times as long as the small tenth segment; strictly myrmecophilous *Cercocerus*.

Tribe Ceophyllini

Monogeneric, see checklist.

Tribe Ctenistini

- 1 Maxillary palpi with last three segments (second, third and fourth) penicillate, *viz.*, bearing laterally a bundle of projecting setae or a lateral lobe 2
 Maxillary palpi small, obscure, never penicillate 3
- 2 (1) Maxillary palpi with third and fourth segments subtriangular, as long or longer than wide (Pl. V, 10) *Ctenisis*.
 Maxillary palpi with third and fourth segments very transverse, subtriangular to suboval (Pl. V, 11) *Pilopius*.
- 3 (1) Metathoracic tibiae slender and simple *Anitra*.
 Metatibiae either apically dilated or flattened 4
- 4 (3) Metatibiae apically swollen or dilated *Atinus*.
 Metatibiae strongly flattened for entire length in both sexes *Biotus*.

Tribe Fustigerini

Monogeneric, see checklist.

Tribe Adraniini

Monogeneric, see checklist.

QUESTIONABLE GENERIC RECORDS AND OTHER OBSCURITIES

1. The tribe Jubinini (Raffray, 1903-1904) is often listed as represented in the United States. This is based on *Stratus ursinus* Schaufuss, 1872. This species is the genotype, known from Teapa, Tabasco, Mexico. The additional Schaufuss record of Louisiana is probably in error as to locality. Until authentic specimens are collected, the tribe should not be listed for the United States.

2. The subtribe Dalmodiina (Park, 1951) , of the tribe Tanypleurini (Jeannel, 1949) is often listed as represented in the United States. This is based on *Dalmodes schaufussi* Raffray, 1896. This species was transferred to *Bythinophysis* (Raffray, 1908) by Park, 1942. *B. schaufussi* is known from Teapa, Tabasco, Mexico. The additional Raffray record from Louisiana is probably in error as to locality. Until authentic specimens are collected, this tribe should not be listed for the United States.

3. The genus *Euphalepsus* (Reitter, 1883) , of the subtribe Batrisina, tribe Batrisini, is often listed as represented in the United States. This record is based on *E. dentipes* Raffray, 1904 as "North America: Louisiana?" From our present knowledge it is unlikely that this neotropical genus occurs north of Mexico.

4. The genus *Pseudotrimium* (Raffray, 1898) , of the subtribe Trimiina, tribe Euplectini, is based on the genotype *P. microcephalum* Raffray, 1898. This species is without a definite locality. Raffray cites "Yucatan? Teapa (Tabasco) ? New Orleans?" and the genus is probably neotropical. Until authentic specimens are collected north of Mexico, the genus should not be considered a part of the fauna of the United States.

5. The genus *Caccoplectus* (Sharp, 1887) is known from two species. These are the genotype from Guatemala and Mexico, *C. celatus* Sharp, 1887, and *C. spinipes* Schaeffer, 1906 from Texas. *Caccoplectus* was placed in the tribe Holozodini by Raffray, 1890. This assignment was followed by Raffray, 1908, 1911; Leng, 1920; Bradley, 1930; Bowman, 1934; Park, 1942-1950. As a result of the reclassification of the family by Jeannel, 1949a, p. 17, *Caccoplectus* was placed in the tribe Faronini. This leaves the Holozodini unrepresented in the United States (Park, 1951, 1952a).

CHECKLIST OF THE HIGHER TAXONOMIC CATEGORIES

Family **Pselaphidae** (Herbst, 1792; Latreille, 1807)

Subfamily Faroninae (Jeannel, 1949)

Tribe Faronini (Raffray, 1890; reorganized by Jeannel, 1949)

Sonoma (Casey, 1886)*Megarafonus* (Casey, 1897)*Caccoplectus* (Sharp, 1887)

Tribe Pyxidicerini (Raffray, 1903)

Bythinoplectus (Reitter, 1881)

Recently reported from Arizona by Park, 1949.

Subfamily Pselaphinae (Redtenbacher, 1849; reorganized by Jeannel, 1949a, b, c; by Park, 1951, 1952a, b, 1953a)

Tribe Mayetini (Park, 1947, 1951)

? *Mayetia* (Mulsant and Rey, 1875). Transferred from Staphylinidae to Pselaphidae.

Tribe Speleobamini (Park, 1951)

Speleobama (Park, 1951)*Prespelea* (Park, 1953a)

Division Brachyscelia (Raffray, 1890; redefined by Jeannel, 1949)

Tribe Euplectini (Raffray, 1890; redefined by Park, 1942, 1952b) Subtribe

Rhinoscepsina (Bowman, 1934)

Rhinoscepsis (LeConte, 1878) (cf. Park, 1945a, b)*Morius* (Casey, 1893)

Subtribe Trogastrina (Jeannel, 1949)

Rhexidius (Casey, 1887)*Oropus* (Casey, 1886)

Subtribe Trichonychina (Ganglbauer, 1895)

Trichonyx (Chaudoir, 1845). This hitherto strictlyPalearctic Region genus represented by *Trichonyx**sulcicollis* Reichenbach at Flushing, New York (Park, 1953b).

Subtribe Rhexina (Park, 1951)

Rhexius (LeConte, 1950)

Subtribe Panaphantina (Jeannel, 1950)

Thesium (Casey, 1884)

Subtribe Bibloporina (Park, 1951)

Bibloporus (Thomson, 1861)*Eutyphlus* (LeConte, 1880)

Subtribe Euplectina *s.str.* (Raffray, 1890)

Oropodes (Casey, 1893)

Acolonia (Casey, 1893)

Trigonoplectus (Bowman, 1934)

Thesiastes (Casey, 1893)

Euplectus (Leach, 1817) (Included here is *Leptoplectus* Casey, 1908)

Trimiopectus (Brendel, 1890; Park, 1949)

Ramecia (Casey, 1893)

Biblopectus (Reitter, 1881)

Subtribe Trimiina (Bowman, 1934)

Actium (Casey, 1886) (Included here is *Actiastes* Casey, 1897, *Pseudactium* Casey, 1908, and *Propectus* Raffray, 1890)

Simplona (Casey, 1897)

Cupila (Casey, 1897)

Subgenus *Cupila* (*s.str.*) (cf. Park, 1945)

Basolum (Casey, 1897)

Melba (Casey, 1897)

Subgenus *Melba* (*s. str.*) (cf. Park, 1942) Subgenus

Perimelba (Park, 1943)

Dalmosella (Casey, 1897; Park, 1942)

Trimiomelba (Casey, 1897)

Perimelba (Park, 1953c)

Tribe Brachyglutini (*sensu* Raffray, 1908 and Park, 1942, 1951;

Bryaxini of Jeannel, 1949, 1950)

Subtribe Eupseniina (Park, 1951)

Eupsenius (LeConte, 1850)

Subtribe Brachyglutina (*s.str.*)

Rybaxis (Saulcy, 1874)

Nisaxis (Casey, 1886)

Brachygluta (Thomson, 1859) (Included here is *Nisa* Casey, 1886)

Reichenbachia (Leach, 1825) (See foot-note 6)

Briaraxis (Brendel, 1894)

Eutrichites (LeConte, 1880)

Anchylarthron (Brendel, 1887) (Included here is *V* *erticinotus* Brendel, 1890)

Scalenarthrus (LeConte, 1880)

Pselaptus (LeConte, 1880)

Subtribe Decarthronina (Park, 1951)

Decarthron (Brendel, 1865)

Subgenus *Decarthron* (*s.str.*) (cf. Park, 1942)

Tribe Tychini (*sensu* Jeannel, 1949; Park, 1953a) *Tychus* (
Leach, 1817)
Cylindrarctus (Schaufuss, 1887)

Tribe Valdiini (Park, 1953a) *Valda* (
Casey, 1893)

Tribe Bythinini (*sensu* Jeannel, 1949; Park, 1953a) *Machaerites* (Miller, 1885;
sensu Jeannel, 1950; Park, 1953a)
Subgenus *Speleochus* (Park, 1951)
Machaerodes (Brendel, 1890)
Bythinopsis (Raffray, 1908) (cf. Park, 1951) *Pselaptrichus* (
Brendel, 1889)
Subgenus *Pselaptrichus* (*s. str.*) (cf. Park, 1953a) Subgenus *V*
estitrichus (Park, 1953a)

Tribe Batrisini (Raffray, 1890)

Subtribe Batrisina *s.str.* (cf. Park, 1951)

Arthmius (LeConte, 1850)

Batrisodes (Reitter, 1881; *sensu* Raffray, 1904; Park, 1951)

(For keys to species, diagnoses, ecology and distribution see
Park, 1947, 1948; for key to subgenera and key to
cavernicolous species see Park, 1951)

Subgenus *Batriasymmodes* (Park, 1951) Subgenus

Babnormodes (Park, 1951)

Subgenus *Pubimodes* (Park, 1951)

Subgenus *Excavodes* (Park, 1951)

Subgenus *Elytodes* (Park, 1951)

Subgenus **Spifemodes** new subgenus (Type of subgenus:
Batrisodes schaumii (Aube), 1844; part of Group III,
Park, 1947)

Subgenus **Empinodes** new subgenus (Type of subgenus:
Batrisodes albionicus (Aube), 1833; Group II, Park, 1947)

Subgenus *Declivodes* (Park, 1951)

Subtribe Amauropsina (Jeannel, 1948)

Arianops (Brendel, 1893) (Included here are *Anops*

Brendel, 1890 and *Eusanops* Casey, 1897) Subgenus

Arianops (*s. str.*) (cf. Park, 1951) Subgenus *Arispeleops* (
Park, 1951)

Division Macroscelia (Raffray, 1890; redefined by Jeannel, 1949)

Tribe Pselaphini (Raffray, 1890) (cf. Jeannel, 1951a for a revision of genera of the world)

Pselaphus (Herbst, 1792)

Tribe Tyrini (Raffray, 1890; reorganized by Jeannel, 1949, 1950)

Tyrus (Aube, 1833) (Included here is *Pytna* of Casey, 1887)

Cedius (LeConte, 1850) (cf. Park, 1949 for monograph of genus)

Subgenus *Cedius* (*s.str.*)

Subgenus *Sinistrocedius* (Park, 1949)

Mipselytus (Park, 1953a)

Tribe Hamotini (Park, 1951)

Hamotus (Aube, 1844) (cf. Park, 1942)

Subgenus *Hamotoides* (Schaufuss, 1887) *Cercocerus* (LeConte, 1861) (cf. Park, 1942)

Tribe Ceophyllini (Park, 1951)

Ceophyllus (LeConte, 1850) (cf. Park, 1932 for ecology)

Tribe Tmesiphorini (Jeannel, 1949)

Tmesiphorus (LeConte, 1850) (cf. Park, 1933 for ecology)

Tribe Ctenistini (Raffray, 1890)

Ctenisis (Raffray, 1890)

Pilopius (Casey, 1897)

Anitra (Casey, 1893)

Atinus (Horn, 1868)

Biotus (Casey, 1887)

Subfamily Clavigerinae (Redtenbacher, 1849; reorganized by Jeannel, 1949)

Tribe Fustigerini (Jeannel, 1949) *Fustiger* (

Brendel, 1866)

Tribe Adraniini (Park, 1951)

Adranes (LeConte, 1850) (cf. Park, 1932 for ecology)

In the preceding list the pselaphid fauna of the United States is found to contain all three subfamilies known at present. Included for the area are 18 tribes and 67 genera. This gives a nearctic fauna of 406 known species, but represents only a part of the contemporary fauna.

Although almost any section of the United States will probably repay study, in the opinion of the author the following regions seem least known: Ozark Mountains area of Missouri and Arkansas; peninsular Florida, south of Tampa; Great Smoky and Black Mountains; the cavern system of northern Alabama, Tennessee, Kentucky, West Virginia; the coastal areas along the Gulf of Mexico; northern Idaho westward into Washington and Oregon.

In these areas, with the exception of caverns, the best method of collecting pselaphids would appear to be the extraction of the insects from deep soil, or leaf mold debris by means of a Berlese, Silvestri or Tüllberg funnel system. Tree holes also are known to yield interesting species by the same method (Park, Auerbach and Corley, 1950).

Abstract

The pselaphid beetle fauna of the United States is reviewed with respect to subfamilies, tribes, subtribes, genera and subgenera. These higher taxonomic categories are discriminated by means of a series of keys, based on new data in part, and on recent work by Jeannel on the faunas of Europe and of Africa, and by Park on the fauna of tropical and temperate America. A checklist of these categories is provided. At present, there are three subfamilies, eighteen tribes, sixty-seven genera, and 406 species of Pselaphidae known from the Nearctic Region.

LITERATURE CITED

- Aube, Carolo
1833 Monographia Pselaphiorum cum synonymia extricata. Paris. Lequien.
p. 1-94, pl. 1-17.
1844 Revision de la famille des Psélaphiens. Ann. Soc. ent. France, vol. 2, p. 73-160.
- Bowman, J. R.
1934 The Pselaphidae of North America. Pittsburgh, privately published. p. 1-149.
- Bradley, J. C.
1930 A manual of the genera of beetles of America north of Mexico. Ithaca. Daw, Illston. p. 1-360.
- Brendel, Emil
1865 On some new species of Pselaphidae. Proc. Ent. Sec. Philadelphia, p. 28-32
1866 Descriptions of some new species of Pselaphidae. Proc. Ent. Soc. Philadelphia, p. 189-194.
1887 Some corrections in the family Pselaphidae. Trans. Amer. Ent. Soc., vol. 14, p. 204-208, *fig.* 1-3.
1889 Descriptions of new Scydmaenidae and Pselaphidae. Entom. Amer., vol. 5, p. 193-197
1893 Notes and descriptions of Pselaphidae, with remarks on the Scydmaenidae. Trans. Amer. Ent. Soc., vol. 20, p. 277-284, *fig.* 1-20.
1894 On some Pselaphidae. Ent. News, vol. 5, p. 158-160, *fig.* 1-7.

- Brendel, Emil and H. F. Wickham
 1890 The Pselaphidae of North America. Bull. Lab. Nat. Hist., St. Univ. Iowa, vol. 1, p. 216-304; vol. 2, p. 1-84, pl. 6-12.
- Casey, T. L.
 1884 Contributions to the descriptive and systematic Coleopterology of North America, Part II. Philadelphia, privately published. p. 61-198.
 1886 Descriptive Notices, I. Bull. California Acad. Sci., vol. 1, p. 157-264.
 1887 On some new North American Pselaphidae. *Ibid.*, vol. 2, p. 455-482, pl. 16.
 1893 Coleopterological Notices, V. Ann. New York Acad. Sci., vol. 7, p. 281-606.
 1897 Coleopterological Notices, VII. *Ibid.*, vol. 9, p. 285-684.
 1908 Remarks on some new Pselaphidae and a new genus of Byrrhidae. Canadian Entom., vol. 40, p. 257-282.
- Herbst, Johann Friedrich Wilhelm
 1792 Natursystem aller bekannten in- und ausländischen Insekten, als eine Fortsetzung de von Buffonschen Naturgeschichte, vol. 4, viii, 1-197 (*Pselaphus* p. 106).
- Horn, George H.
 1868 Catalogue of Coleoptera from south western Virginia. Trans. Amer. Entom. Soc., vol. 2, p. 123-128 (*Atinus* p. 127).
- Jeannel, Rene
 1948 Revision des *Amaurops* et genres voisins. Revue Française d'Entomologie, vol. 15, p. 1-19, *fig.* 1-8.
 1949a Les Psélaphides de l'Afrique Orientale. Mem. du Museum d'Histoire Naturelle, n.s., vol. 29, p. 1-226, *fig.* 1-103.
 1949b Faune du Congo Belge et du Ruanda-Urundi, II. Pselaphidae. Ann. du Musée du Congo Belge Tervuren (Belgique), Sci. Zool., vol. 2, p. 7-275, *fig.* 1-121.
 1949c Psélaphides de la Cote d'Ivoire. Revue Française d'Entomologie, vol. 16, p. 99-127, *fig.* 1-34.
 1950a Coléoptères Psélaphides. Fauna de France, No. 53. Paris. Lechevalier. p. 1-421, *fig.* 1-169.
 1950b Geonemie des Psélaphides de l'Afrique intertropicale. Mem. du Museum d'Histoire Naturelle, ser. A, Zoologie, vol. 2, p. 1-48, *fig.* 1-23.
 1951a Sur la Systematique des Genres de la tribu *Pselaphini* Raffray. Revue Française d'Entomologie, vol. 18, p. 5-11.
 1951 b Psélaphides de l'Angola recueillis par M.A. de Barros Machado. Museu do Dundo, Pub. Culturais No. 9, p. 7-125, *fig.* 1-74.
- Latreille, P. A.
 1807 Genera Crustaceorum et Insectorum, parts II, III. Paris. (not seen).
- Leach, William Elford
 1817 On the stirpes and genera composing the family Pselaphidae; with the names of the British species. The Zoological Miscellany; being descriptions of new or interesting Animals, vol. 3, p. 80-87 (*Euplectus* p. 80, 82).
 1826 On the stirpes and genera composing the family Pselaphidae; with descriptions of some new species. The Zoological Journal, vol. 2, p. 445-453 (*Reichenbachia* p. 451).

- 1953 PARK: GENERA OF PSELAPHID BEETLES 23
- LeConte, J. L.
 1850 On the Pselaphidae of the United States. Boston Jour. Nat. Hist., vol. 6, no. 1, p. 64-110.
 1861 Classification of Coleoptera, part I. Smithsonian Misc. Coll., III, p. 1-286.
 1880 Short studies of North American Coleoptera. Trans. Amer. Ent. Soc., vol. 8, p. 163-218.
- LeConte, J. L. and E. A. Schwarz
 1878 Coleoptera of Florida. Proc. Amer. Philos. Soc., vol. 17, p. 353-472.
- Leng, C. W.
 1920 Catalogue of the Coleoptera of America, north of Mexico. Mount Vernon, N. Y. John D. Sherman, Jr. p. x, 1-470.
- Miller, Ludwig
 1885 Beiträge zur Grotten-Fauna Krains. Verh. Zool.-bot. Ges. Wien, vol. 5, p. 505-510. (*Machaerites* p. 509).
- Mulsant, Etienne and Claudius Rey
 1876 (*Mayetia*) Opusc. entom. XVI, p. 87 (not seen).
 1876 Description de Deux Espèces de Coléoptères nouvelles ou peu connues de la Famille des Aléochariens. Societe linneenne de Lyon, vol. 22, p. 9-11 (Presented before the Society on January 11, 1875; *Mayetia* p. 9; which reference has priority?).
- Park, Orlando
 1932 The myrmecocoles of *Lasius umbratus mixtus aphidicola* Walsh. Ann. Entom. Soc. Amer., vol. 25, p. 77-88, fig. 1-4.
 1933 The food and habits of *Tmesiphorus costalis* LeConte. Ent. News, vol. 44, p. 149-151.
 1935 *Hamotus turalbus*, a new species from Costa Rica. Ann. Entom. Soc. Amer., vol. 28, p. 131-134, fig. 1-10.
 1942 A study in neotropical Pselaphidae. Northwestern Univ. Stud. Biol. Med., no. 1, p. x, 1-403, pl. 1-21.
 1943 A preliminary study of the Pselaphidae (Coleoptera) of Mexico. Bull. Chicago Acad. Sci., vol. 7, no. 3, p. 171-226, pl. 1-3.
 1944 New and little known Pselaphidae (Coleoptera) from Brazil, Colombia, and Mexico, with keys to Mexican genera and species. *Ibid.*, vol. 7, no. 4, p. 227-267, pl. 1-2.
 1945a A preliminary study of the Pselaphidae (Coleoptera) of the Guianas. *Ibid.*, vol. 7, no. 6, p. 277-327, pl. 1-7.
 1945b Further studies in Pselaphidae (Coleoptera) of Mexico and Guatemala. *Ibid.*, vol. 7, no. 7, p. 331-443, pl. 1-11.
 1947 Observations on *Batrisodes*, with particular reference to the American species east of the Rocky Mountains. *Ibid.*, vol. 8, no. 3, p. 45-132, pl. 1-11.
 1948 Checklist of the genus *Batrisodes* (Coleoptera: Pselaphidae). *Ibid.*, vol. 8, no. 4, p. 137-169.
 1949 New species of nearctic pselaphid beetles and a revision of the Genus *Cedius*. *Ibid.*, vol. 8, no. 16, p. 315-343, pl. 1-8.
 1951 Cavernicolous pselaphid beetles of Alabama and Tennessee, with observations on the taxonomy of the family. Geol. Surv. Alabama, Mus. Paper 31, p. 1-107, fig. 1-18.
 1952a A revisional study of neotropical pselaphid beetles, Part I. Tribes Faronini, Pyxidicerini and Jubinini. Chicago Acad. Sci., Spec. Publ. no. 9, p. 1-49, pl. 1-3.

- 1952b *Ibid*, Part II. Tribe Euplectini *sensu latiore*. p. 50-150, pl. 4-7.
- 1953a New or little known pselaphid beetles of the United States, with observations on taxonomy and evolution of the family Pselaphidae. Bull. Chicago Acad. Sci., vol. 9, no. 14, p. 247-283, pl. 1-5.
- 1953b An European pselaphid beetle collected in New York. Chicago Acad. Sci., Nat. Hist. Misc., no. 117, p. 1-3.
- 1953c A new genus of pselaphid beetles from the Everglades. *Ibid.*, no. 121, p. 1-4, *fig*.
- Park, Orlando, Stanley Auerbach, and Glenna Corley
- 1950 The tree-hole habitat with emphasis on the pselaphid beetle fauna. Bull. Chicago Acad. Sci., vol. 9, no. 2, p. 19-57, pl. 1-6.
- Raffray, Achille
- 1890 Etude sur les Psélaphides, Parts 1, 5, 6, 7. Revue d'Entomologie, vol. 9, p. 1-28, 81-172, 193-220, 264-265; 119 *fig*.
- 1896 Nouvelles études sur les Psélaphides et les Clavigérines. Ann. Soc. ent. France, vol. 65, p. 227-284, pl. 10, 11.
- 1898 Notes sur les Psélaphides-Révision Générique de la tribu des Euplectini-descriptions d'espèces nouvelles. Revue d'Entomologie, vol. 17, p. 198-273.
- 1903-1904 Genera et Catalogue des Psélaphides. Ann. Soc. ent. France, vol. 72, p. 484-604; vol. 73, p. 1-476, 636-658; 139 text-fig., pl. 1-3.
- 1908 Pselaphidae. Genera Insectorum, 64th Fascicule, P. Wytsmann, ed. Bruxelles, p. 1-487, pl. 1-9.
- 1911 Pselaphidae, Junk's Coleopterorum Catalogus, Part 27, p. 1-222.
- Redtenbacher, Ludwig
- 1849 Fauna Austriaca. Die Käfer. 1st ed. (2nd ed. 1858) Wien.
- Reitter, Edmund
- 1881 Versuch einer systematischen Eintheilung der Clavigerinen und Pselaphiden. Verh. naturf. Ver. Brunn, vol. 20, p. 177-211.
- 1883 Neue Pselaphiden und Scydmaeniden aus Central- und Südamerika. Verhandl. Kaiserl. zool.-bot. Gesell. Wien (1882), vol. 32, p. 371-386
- Saulcy, Félicien de
- 1874 Species des Paussides, Clavigérines, Psélaphides et Scydmanides de l'Europe et des pays circonvoisins, II. Bull. Soc. Hist. Natur. Moselle (Rybaxis p. 136).
- Schaeffer, C. F. A.
- 1906 Six new Pselaphidae. Trans. Amer. Entom. Soc., vol. 32, p. 261-266.
- Schaufuss, L. W.
- 1872 Ueber Pselaphidengattungen. Nunquam otiosus, II. Zool. Mitt., Dresden, vol. 2, p. 450-460
- 1887 Beschreibung neuer Pselaphiden. Tijdschrift voor Entom., vol. 30, p. 91-165
- Sharp, David
- 1887 Pselaphidae. Biologia Centrali-Americana. Coleoptera, vol. 2, pt. 1, p. 1-146, pl. I.
- Thomson, C. G.
- 1859 Skandinavien Coleoptera, Synoptiskt Bearbetade. Lund. vol. 1, p. 1-290 (*Bibloporus* p. 53, *Brachygluta* p. 54).
- 1861 *Ibid*, vol. 3, p. 1-278 (*Bibloporus* p. 225, *Brachygluta* p. 236).

PLATES I - V

PLATE I

Trimiomelba dubia (LeConte)

1. Dorsal aspect of male, x 70.
2. Punctuation of head of male, x 70.
3. Vertexal horn of male, x 960, oil immersion.
4. Capitulate setae of genal area, x 960, oil immersion.
5. Maxillary palpal cone, x 960, oil immersion.
6. Tenth and eleventh antennal segments, with antennal
cones, x 960, oil immersion.
7. Head of female, dorsal aspect, x 70.
8. Punctuation of head of female, x 70.
9. Elytron, lateral face, x 70.
10. Fourth to seventh sternites, male, x 70.
11. Fourth to sixth sternites, female, x 70.
12. Tarsal claw and accessory setiform claw, x 440.

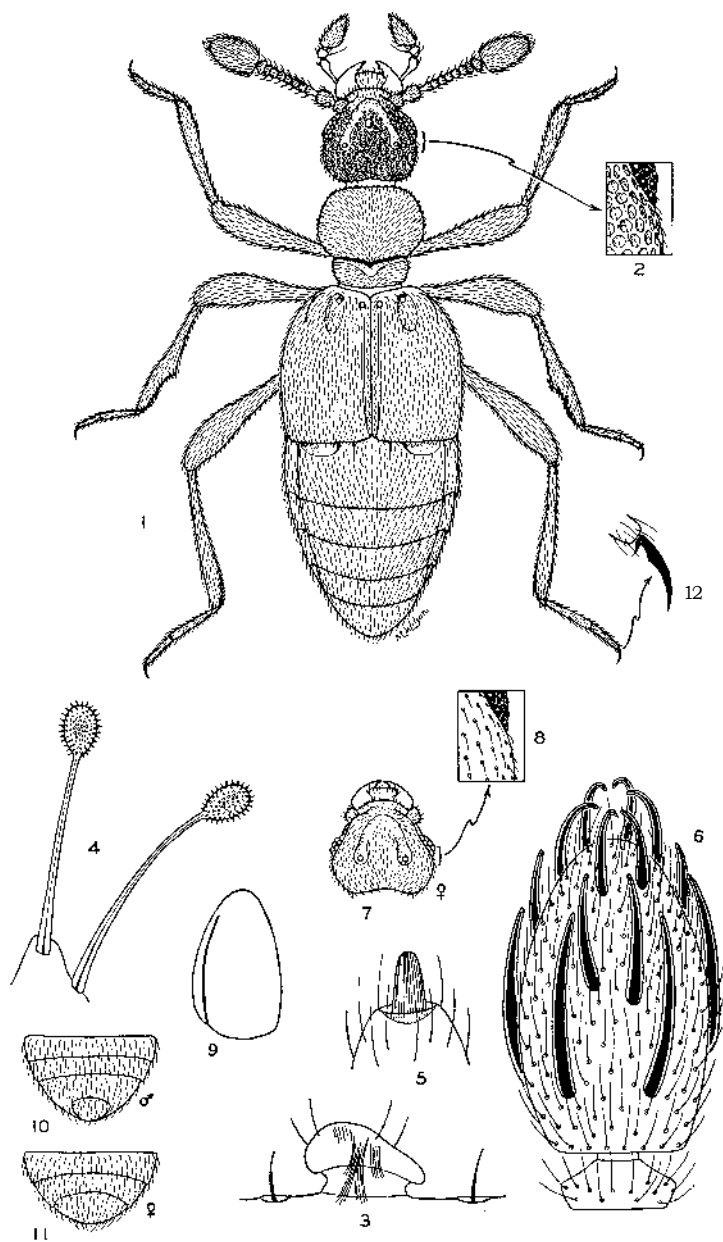


PLATE II

Note: Figures 1 to 8 refer to the tribe Mayetini, ?*Mayetia* species?, from Coles County, Illinois, and are drawn under 430 diameters from slide-mounts.

1. Dorsal aspect.
2. Ventral aspect of right half of head, thorax and first visible sternite.
3. Prothoracic leg.
4. Mesothoracic leg.
5. Metathoracic leg.
6. Right maxillary palpus, dorsal view.
7. Left maxillary palpus, lateral view.
8. Antenna, note that tenth and eleventh segments are connate.
9. Speleobamine ruff, as in *Prespelea quirysfeldi*.
10. A normal, aciculate, monaxon seta of the family Pselaphidae.
11. A squamous seta of the tribe Ctenistini.
12. A bifurcated seta of the tribe Adraniini.
13. A capitulate seta from the ventral surface of the head in many genera of the tribe Euplectini.

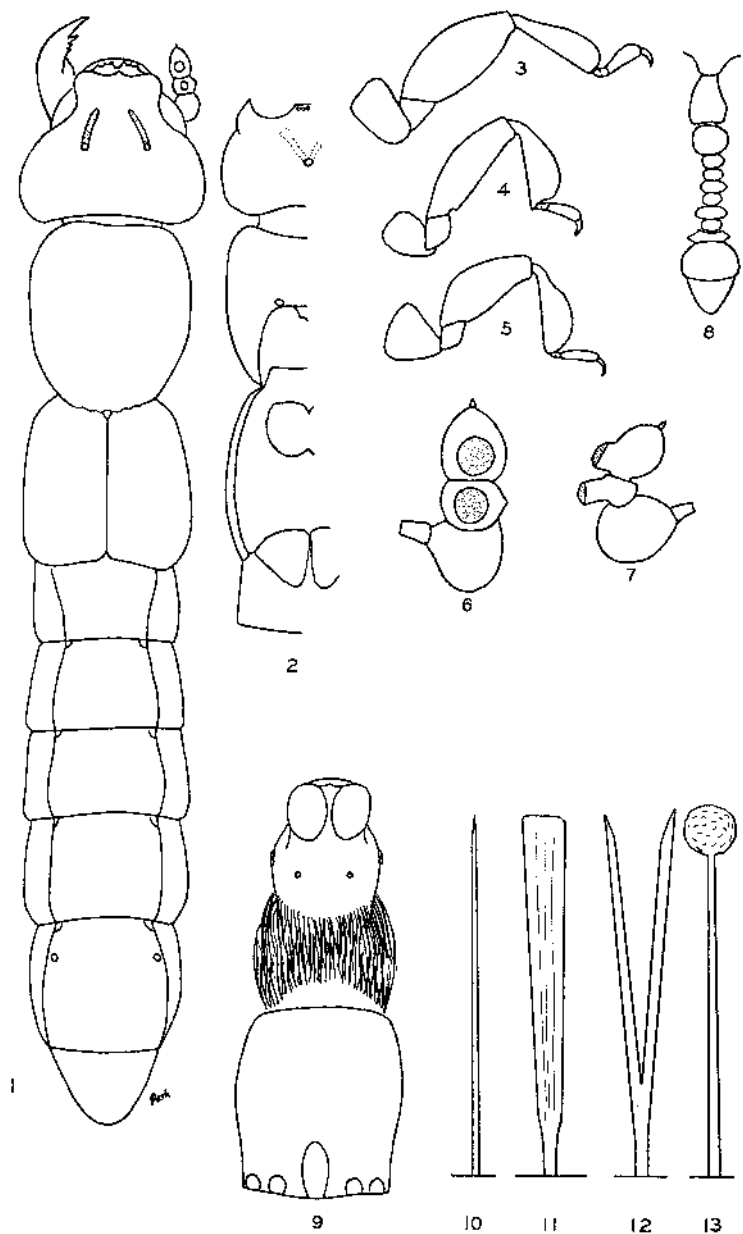


PLATE III

Illustrations drawn at x 70 diameters

1. Separated mesothoracic coxal cavities of *Thesium cavifrons* (LeConte) .
2. Confluent mesothoracic coxal cavities of *Melba laticollis* (Brendel) .
3. Metathoracic coxae conically produced, and contiguous, in *Melba laticollis* (Brendel) .
4. Metathoracic coxae not conically produced, distant, and exhibiting brachysceline articulation of femur, in *Pselaptrichus rothi* Park.
5. Metathoracic coxae not conically produced, distant, and exhibiting macrosceline articulation of femur, in *Pselaphus fustifer* Casey.
6. Brachysceline articulation of mesothoracic legs, in *Reichenbachia gemmifer* LeConte.
7. Macrosceline articulation of mesothoracic legs, in *Pselaphus fustifer* Casey.
8. Prosternum medianly longitudinally carinate, in *Thesium cavifrons* (LeConte) .
9. Simple elytral flank, in lateral view
10. Elytral flank bearing a subhumeral fovea and longitudinal carina.
11. Elytral flank bearing an oblique line.
12. Elytral flank bearing an almost straight line, subparallel to elytral margin.

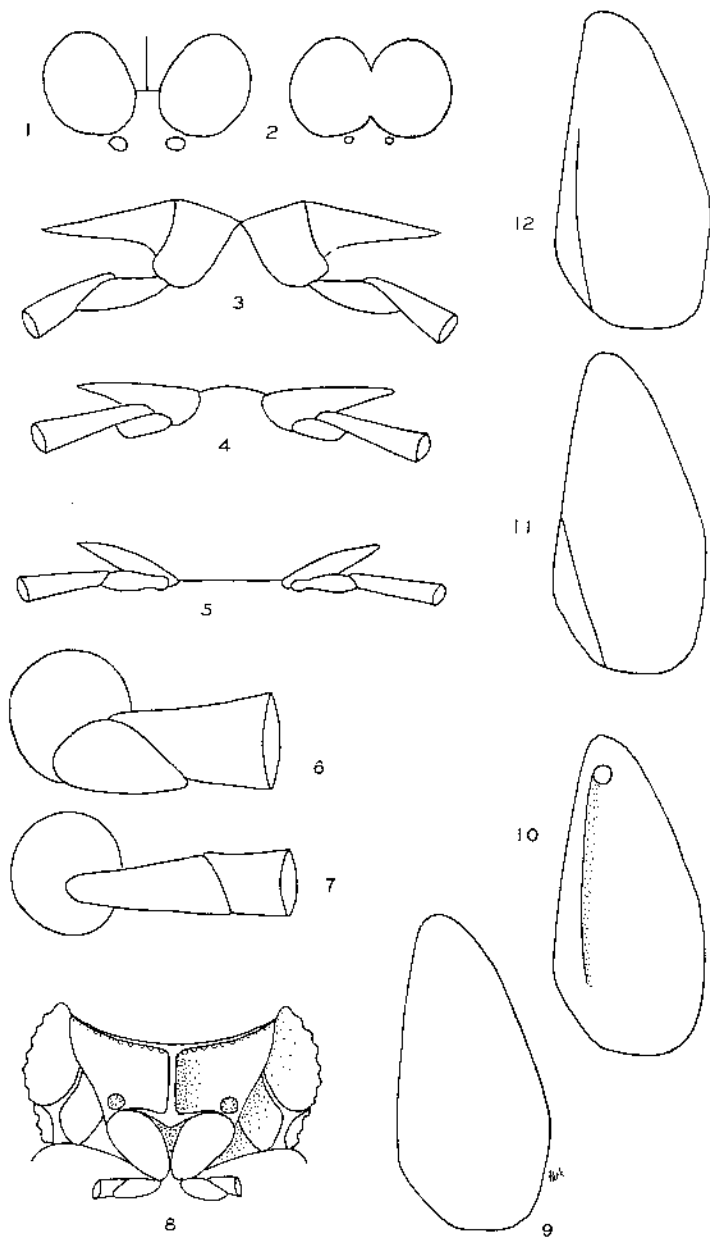


PLATE IV

Illustrations drawn at x 440 diameters, with various degrees of enlargement.

1. Tarsus of *Bythinoplectus*, apparently two-segmented at this magnification. Pyxidicerini.
2. Tarsus of *Sonoma tolulæ* (LeConte) . Faronini.
3. Tarsus of *Adranes lecontei* Brendel. Adraniini.
4. Tarsus of *Rhexidius canaliculatus* (LeConte). Euplectini (Trogastriina).
5. Tarsus of *5 Batrisodes globosus* (LeConte) . Batrisini (Batrisina) .
6. Tarsus of 8' *Batrisodes cavicornis* Casey
7. Tarsus of *Pselaphus bellax* Casey. Pselaphini.
8. Tarsus of *Cedius cruralis* Park. Tyrini.
9. Tarsus of *Prespelea quirsfeldi* Park. Speleobamini.
10. Fourth to sixth sternites, female, *Euplectus confluent* LeConte.
11. Fourth to seventh sternites, male, *Euplectus confluent* LeConte.
12. Maxillary palpus of *Pselaptrichus tuberculipalpus* Brendel.
13. Maxillary palpus of *Machaerodes carinatus* Brendel.
14. Maxillary palpus of *Machaerites ferus* Park.
15. Maxillary palpus of *Prespelea quirsfeldi* Park.

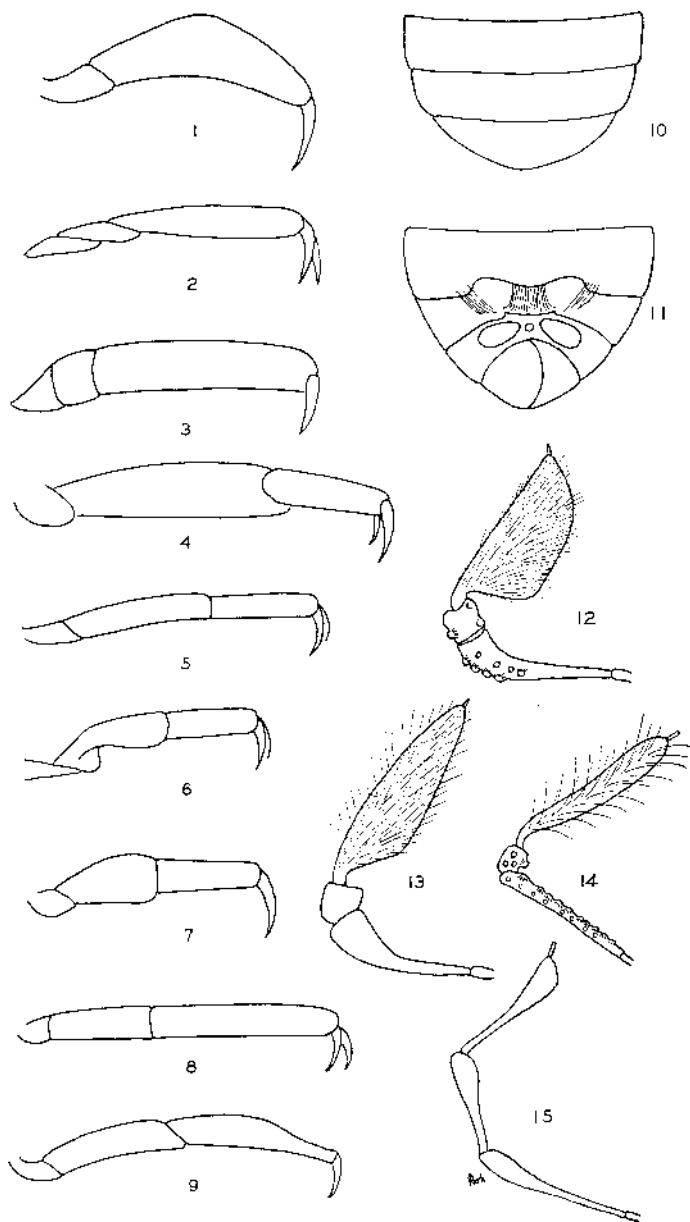


PLATE V

Illustrations of maxillary palpi drawn at x 70 diameters, with various degrees of enlargement.

1. *Speleobama vana* Park
2. *Cercocerus batrisoides* LeConte
3. *Tmesiphorus costalis* LeConte
4. *Ceophyllus monilis* LeConte
5. *Cedius ziegleri* LeConte
6. *Tychus daggyi* Park
7. *Mipseltyrus nicolayi* Park
8. *Tyrus consimilis* Casey
9. *Reichenbachia cylindractus* (Brendel)
10. *Ctenisis raffrayi* Casey
11. *Pilopius zimmermanni* (LeConte)
12. *Pselaphus fustifer* Casey
13. *Pselaphus bellax* Casey

